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## NOTICE OF ALLOWANCE AND FEE(S) DUE

20210 7590 08/08/2008

DAVIS BUJOLD & Daniels, P.L.L.C.  
112 PLEASANT STREET  
CONCORD, NH 03301

EXAMINER

MEYER, JACOB B

ART UNIT

PAPER NUMBER

3618

DATE MAILED: 08/08/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,452

04/18/2006

Johannes Sorg

ZAHFRIP848US

2428

TITLE OF INVENTION: ELECTRICAL DRIVE SYSTEM FOR A VEHICLE WITH SKID STEERING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/10/2008

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

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20210 7590 08/08/2008

DAVIS BUJOLD & Daniels, P.L.L.C.  
112 PLEASANT STREET  
CONCORD, NH 03301

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,452	04/18/2006	Johannes Sorg	ZAHFRIP848US	2428

TITLE OF INVENTION: ELECTRICAL DRIVE SYSTEM FOR A VEHICLE WITH SKID STEERING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/10/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
MEYER, JACOB B	3618	180-065600

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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20210	7590	08/08/2008	EXAMINER	
DAVIS BUJOLD & Daniels, P.L.L.C. 112 PLEASANT STREET CONCORD, NH 03301			MEYER, JACOB B	
			ART UNIT	PAPER NUMBER
			3618	
DATE MAILED: 08/08/2008				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 417 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 417 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability**

Application No.

10/573,452

Applicant(s)

SORG, JOHANNES

Examiner

JACOB MEYER

Art Unit

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03/24/2006.
2. ☒ The allowed claim(s) is/are 6-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date <u>03/24/2006</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                     | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 03/24/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

## **EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael J. Bujold (Applicant's attorney) on 07/31/2008.

The application has been amended as follows:

**In the Specification:** the specification has been replaced with the following.

**ELECTRICAL DRIVE SYSTEM FOR A VEHICLE WITH SKID STEERING**

This application is a national stage completion of PCT/EP2004/009614 filed August 28, 2004 which claims priority from German Application Serial No. 103 44 711.3 filed September 26, 2003.

## FIELD OF THE INVENTION

The invention concerns an electrical drive system for a vehicle with a skid steering element.

## BACKGROUND OF THE INVENTION

Vehicles with a skid steering element are tracked vehicles or wheeled vehicles in which, while driving along curves, the inner drive chain and/or the inner drive wheels are slowed down in each case opposite the outer drive chain and/or the outer drive wheels. In particular, with heavy tracked vehicles, this requires substantial brake performances on the inner drive chain.

There are well-known different systems, which permit this brake performance being supplied to the outer drive chain. With a mechanical or hydrostatic-mechanical, superimposed, steering gear with a steering gear part and a driving transmission part, as is revealed in DE 38 33 784 A1. For this, a zero-shaft propelled by the steering gear part and the performance exchange from the inner drive chain to the outer drive chain is intended to be made mechanically by the driving transmission part.

DE 100 05 527 A reveals a diesel electric drive system with each of the two chains assigned its own electrical drive system, whereby no mechanical connections exist between them. The power transmission between the left and right side takes place exclusively in an electrical way, what permits a space-favorable arrangement of the drive components. However, it requires an efficient electrical system and high performance electrical drive engines.

EP 0 304 594 A, likewise, shows a diesel electric, drive system which, in addition, exhibits a mechanical superimposed steering gear. For drive and guidance drive in each case, an electrical driving motor of a different size is intended. With this drive system, the power transmission between the left and the right side takes place exclusively mechanically. This well-known drive system is, however, very complex and not optimal as far as space constrictions are concerned. There is needed not only a diesel engine and a complex mechanical superimposed steering gear, but beyond that still another high performance generator and two electrical drive engines. traveling straight ahead avoids drive engine stress and the installed performance of the guidance driving motor is not activated.

WO 02/083483 A shows a drive system, with which homogeneous electrical drive machines are arranged on each side and with which, in addition, a central third electric motor is intended as a guidance engine. Finally, U.S. Patent No. 5,445,234 shows, as most state of the art, the drive system for a vehicle with a skid steering element under consideration. This exhibits one left and one homogeneous right electrical drive engine. This electrical drive system serves both electrical

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drive engines at the same time, as well as drive and steering trains. The fully installed electrical, drive power is available for traveling straight ahead. The power transmission between the left and right side takes place partly mechanically and partly electrically.

A gear unit is arranged on each side of the planetary gears. The planet pinion cages of these two gear units form the two drives, which affect the tracks. The sun gear of the left gear unit becomes propelled over a spur gear stage of the left drive engine and the sun gear of the right gear unit over a spur gear stage of the right drive engine. The two internal gears of the left and right gear unit are turning rigidly connected by a connecting shaft. In addition, a gear train is arranged between the sun gear of the left gear unit and the sun gear of the right gear unit, which also couples the two drive engines with one another. Thus, now while driving along curves, the two drive engines can be operated with different numbers of revolutions; this gear train concentrically exhibits a differential gear.

The task of the invention is to indicate a generically-conforming drive system for a vehicle with a skid steering element which gets along without such a concentric differential gear.

## SUMMARY OF THE INVENTION

On the basis of a generically-conforming drive system, the solution of this task takes place via two gear units exhibiting two transfer elements, which are not assigned to the respective drive. If the drive is formed by the planet pinion cage, these two transfer elements are thus the sun gear

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and the internal gear. One of these transfer elements is designated "first" and the other one of these transfer elements "second". According to the invention, the first transfer element of the left gear unit thus, the first left transfer element, is directly connected through a first mechanical gear train with the second transfer element of the right gear unit, thus the second right transfer element and the first right transfer element is connected directly through a second mechanical gear train with the second left transfer element. The two gear trains are between different transfer elements of the two gear units crosswise with one another, thus in each case directly connected - thus without a compensating element like a differential gear.

Between the left and the right gear unit only two shafts must be placed, which takes only a small building area.

The terms "left" and "right" drive engine are, in connection with the invention, to be understood in such a way that the "left" drive engine is connected with a first transfer element of the left gear unit and the "right" drive engine is connected with an appropriate transfer element of the right gear unit. The two drive engines must be arranged in the vehicle, although not necessarily on the left and on the right of the vehicle, but can arranged concentrically one behind the other or concentrically one above the other, depending upon vehicle configuration.

Although different designs can be used, it is favorable if each gear unit is designed as a planetary gear unit with several planetary gears, which are stored in a swiveling planetary unit and in synchronous operation with a sun gear and an internal gear, whereby in each case the planet

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pinion cage of the drive member, the internal gear, the first transfer element and the sun gear form the second transfer element.

In a favorable arrangement, the invention requires that the first mechanical, torque-proof, gear train with the internal gear of the left gear unit be connected to the first spur gear, with the torque-proof sun gear of the right gear unit connected to the second spur gear and a connecting shaft, which exhibit a third and a fourth spur gear at their ends, whereby the third with first and the fourth with the second spur gear stand in interference. Accordingly, the second mechanical gear train is built torque-proof with an internal gear of the right gear unit connected to the fifth spur gear with a torque-proof, sun gear of the left gear unit connected to the sixth spur gear and a second connecting shaft, which exhibit a seventh and an eighth spur gear at their ends, whereby the seventh with the fifth and the eighth with the sixth spur gear stand in interference. For better utilization of energy, an electrical middle enclosure can be placed between the left and the right electrical drive engines, which at least in certain operating conditions, an electrical performance leads from the left drive engine working as a generator to the right drive engine working as engine and in reverse.

Finally, protection is desired for the gear unit, which is built for an electrical drive system according to the invention.

## BRIEF DESCRIPTION OF THE DRAWINGS

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The invention will now be described, by way of example, with reference to the accompanying drawings in which:

FIG. 1 schematically shows an electrical drive system for a vehicle with a skid steering element, according to the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

The invention is described on the basis of the enclosed design, which schematically shows an electrical drive system, according to the invention, for a vehicle with a skid steering element. In it, the left electrical, drive engine is marked with 2 and a right electrical drive engine with 4. An electrical energy source 6 can consist of a combination of a diesel engine with an electrical generator or also of a battery or a gas cell. An electronic control unit 8 covers control hard- and software as well as power electronics. Depending on a control input signal 10, which the driver produces by manipulation of unrepresented controls, into the two electric drives 2, 4 over lines 12, 14, depending on the control input signals 10, the appropriate number of revolutions are performed. A left gear unit 16 exhibits several planetary gears 20, which are stored on a swiveling planet, pinion cage 22. The planetary gears 20 are in synchronous operation with a sun gear 24 and an internal gear 26. The planet, pinion cage 22 forms the drive member and is connected by a flange 28 with an unspecified star of the track drive assembly. The internal gear 26 is connected by a shaft 30 with the left drive engine 2. With a homogeneous right gear unit 18, the planetary gears are designated as 32, a planet, pinion cage as 34, a sun gear as 36, an

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internal gear as 38 and a drive flange as 40. A shaft 42 connects the right drive engine 4 with the internal gear 38.

The internal gear 26 of the left gear unit is directly connected with the sun gear 36 of the right gear unit. A mechanical gear train serves for this, which is formed by a torque-free, spur gear 44 connected with the internal gear 26, with which the torque-free, sun gear 36 of the right gear unit 18 is connected to a spur gear 46 and a connecting shaft 48, which exhibit a spur gear 50 and a spur gear 52 at their ends. The spur gear 50 is in constant meshing with the spur gear 44 and spur gear 52 with the spur gear 46.

In an appropriate way, the internal gear 38 of the right gear unit is connected directly with the sun gear 24 of the left gear unit. The mechanical gear train is arranged with a torque-free, spur gear 54, connected between them with the internal gear 38 of the right gear unit 18, which is connected to a spur gear 56 and a connecting shaft 58 with the sun gear 24 of the left gear unit 16, which exhibit a spur gear 60 and a spur gear 62 at their ends. The spur gear 60 is in constant meshing with the spur gear 54 and the spur gear 62 with the spur gear 56.

While traveling straight ahead, the largest part of the drive power of each electrical drive engine 2, 4 will transfer to the power drive flange 28, 40 assigned in each case. To a certain degree, however, the left electrical, drive engine drives the right chain and the right electrical, drive engine the left chain. While driving around curves, the performance of the internal drive motor flows to the outer power, drive flange in reverse, so that a mechanical net performance flowing

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to the outside track is present. Beyond that, also an electrical performance can be led from the inner drive engine to the outer drive engine over the lines 12, 14.

To a large extent, the range of the vehicle cab in the center of the vehicle remains running free from drive components, with only the two connecting shafts 48, 58. The two connecting shafts can be arranged on opposite sides of an axle center of the gear units or, in addition, include an angle smaller than  $180^\circ$  with this axle center, depending upon the requirements of the vehicle configuration.

#### Reference numerals

2 electrical drive engine

4 electrical drive engine

6 energy source

8 control unit

10 control input signal

12 line

14 line

16 gear unit

18 gear unit

20 planetary gear

22 planet pinion cage

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24 sun gear

26 internal gear

28 drive flange

30 shaft

32 planetary gear

34 planet pinion cage

36 sun gear

38 internal gear

40 drive flange

42 shaft

44 spur gear

46 spur gear

48 connecting shaft

50 spur gear

52 spur gear

54 spur gear

56 spur gear

58 connecting shaft

60 spur gear

62 spur gear

**In the Claims:**

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- a. In line 6 of claim 6, “independent” currently reads --independently--.
- b. In line 7 of claim 6, “and the right electrical drive engines (4)” currently reads --and the right electrical drive engine (4)--.
- c. In lines 12-13 of claim 6, “wheel and track (34, 40), covered a first right transfer element (38) connected with the right drive engine (4) and a second right transfer element (36); and” currently reads --wheel or track of a right drive unit (34, 40), and the right drive engine (4) is connected with a first right transfer element (38) and a second right transfer element (36); and--.
- d. In line 5 of claim 8, “exhibits at ends” currently reads --has at adjacent opposite ends thereof--.
- e. In line 10 of claim 8, “at ends exhibits one” currently reads --has at adjacent opposite ends thereof a--.

***Allowable Subject Matter***

4. Claims 6-9 are allowed. The following is an examiner’s statement of reasons for allowance: The prior art when taken alone or in combination with another does not teach or fairly suggest at this time an electrical drive system for a vehicle with a skid steering element having at least: a left electrical drive engine (2) and a homogeneous right electrical drive engine (4); an electrical energy source (6); an electrical control unit (8) for independently increasing a number of revolutions at the left electrical drive engine (2) and the right electrical drive engine (4); a left gear unit (16), connected with one of a left drive wheel or track of a left drive unit (22, 28), and the left drive engine (2) is connected with a first left transfer element (26) and a second left

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transfer element (24); a homogeneous right gear unit (18) connected with one of a right drive wheel or track of a right drive unit (34, 40), and the right drive engine (4) is connected with a first right transfer element (38) and a second right transfer element (36); and a first left transfer element (26) is connected directly with the second right transfer element (36) by a first mechanical gear train (44, 50; 48, 52; 46), and the first right transfer element (38) is connected directly with the second left transfer element (24) by a second mechanical gear train (54, 60; 58, 62; 56). In particular, Hall III discloses a similar drive system; however, Hall, III does not disclose a first left transfer element connected directly with the second right transfer element by a first mechanical gear train, and the first right transfer element connected directly with the second left transfer element by a second mechanical gear train.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references noted in the Notice of References Cited attached hereto may be of interest to Applicant.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB MEYER whose telephone number is (571)270-3535.

The examiner can normally be reached on Monday - Friday 9am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHRISTOPHER ELLIS can be reached on 571-272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher P Ellis/  
Supervisory Patent Examiner, Art Unit  
3618

/J. M./  
Examiner, Art Unit 3618  
07/31/2008